Activity 2

Name _____

PENNY BRIDGE

Supplies

- 4 to 6 books (enough to make 2 stacks the same height)
- 5X8 index cards
- 10 -20 pennies for each team
- Scissors

1. Take an index card, gently bend the card so that it has a curve. Position the cardboard on a table so that it resembles an arch. Press down on the center of the arch. What happens to the ends of the cardboard? _____
2. Make 2 stacks of books with a gap of about 4 inches between them. Make sure the stacks are the same height. (Notice how the stacks of books act as abutments, keeping the ends of the arch from spreading apart).
3. Lay one file card over the gap between the books. About 1/2 inch of the card should be resting on a book at each end. How many pennies can you pile on this flat bridge before it falls into the gap? _____
4. Without adding anything to the file card, try to make your bridge stronger.
5. What happens if you fold the card in half? _____If you make an arch? _____How about if you fold the card into pleats? _____
6. Make a bridge, and then test it to see how many pennies it will hold. Some of your bridges may hold a few pennies before falling down. Others may be stronger, but the pennies may slide right off.
7. How might this particular structure explain how a truss bridge carries the load of moving vehicles? _____

Using just your file card, you can make two of the three different kinds of bridges. When you lay a file card across two books-even if you've folded the card into pleats first-you've made a simple beam bridge. If you cut slots into the card, tuck the flaps under the edges of the book covers, and push the books slightly together, you'll make an arch bridge.

A roll of 50 pennies weighs 132 grams-that's a little more than 41/2 ounces